integrationworx ltd.

ENTERPRISE ARCHITECT Training Partner

Data Modeling Fundamentals with Sparx EA

Course Number: MOD-106
Format: Instructor Led, Classroom
Standard Duration: 18 hours

Overview

This course introduces students to foundational concepts of relational database modeling using a model-driven approach. The course provides an introduction to Sparx EA basic skills and focuses on conceptual, logical, and physical data modeling for relational database design.

Learning Outcomes

- Understand the techniques and notations used in conceptual, logical, and physical database modeling.
- Learn a simplified approach/method that can be used within any methodology to arrive a database design.
- Learn a practical/applied method for normalizing data to second and third normal form.
- Gain basic/introductory skills using the selected software tool and be able to create and manage basic models.
- Learn both Information Engineering and UML notation for database modeling.
- Learn about database indexes and constraints and how these concepts are treated in the relational database model.

General Schedule / Approximate Timing

	Day 1	Day 2	Day 3
AM	0: Modeling Tool Essentials	2: Conceptual Modeling with UML	4: Physical Modeling with Sparx EA
PM	0: Modeling Tool Essentials (Cont'd) 1: Basic Introduction: Data Modeling Concepts and Terminology 1: Hands-On Overview of Conceptual, Logical, Physical Modeling	3: Logical Modeling with Sparx EA	5: Case Study/Workshop (adapted from actual project or domain context)

Course Outline

Unit 0 Modeling and Tool Essentials

Understanding general modeling concepts.
Tool Primer: basic literacy in the chosen modeling tool
Forward and Reverse Engineering Concepts for Relational Modeling

Unit 1 Basic Introduction

Terms, Definitions, and Concepts
Different Types of Database Structures
Database Modeling & The Software Development Process
Three Tiers of Models: Conceptual, Logical, and Physical
Differing Database Purposes: Data Warehouse vs. Transaction Processing
Where to begin? A basic approach

Unit 2 Conceptual Modeling

Gathering Requirements & Defining Data
Creating a Conceptual Model using an Entity-Relationship Model or UML
Complimentary Techniques: State-chart Diagrams and Process Models

Unit 3 Logical Data Modeling

Entity-Relationship Modeling
Logical Data Types
Cardinality in-depth
2nd Normal Form / 3rd Normal Form Normalization
Uniqueness Rules/Constraints
Validating a Logical Model Against Requirements and Rules

Unit 4 Physical Data Modeling

Normalizing for Physical Implementation
Data type selection
Primary and Foreign Keys
Constraints
Indexes

Unit 5 Case Study: From Requirements to Implementation

Model and implement a simple database / apply the techniques.